

REMARKS

Applicant certainly appreciates the courteous assistance provided by Examiner Abrams in the interview held August 4, 2005. As discussed in the interview, applicant is filing an RCE and amending the claims to better define the invention. A one month extension of time is enclosed. Applicant is also enclosing a copy of Figure 1 and requesting approval of another change. Applicant noticed that lead 15 was erroneously drawn to an adapter mounted on the upper end of tubing hanger 11, not to a component of the running tool. Applicant is enclosing a marked-up version as well as a corrected version.

Applicant certainly appreciates the allowance of claim 7 and the indication of allowance of claims 3, 9 and 10 if amended to become independent, incorporating the requirements of the base claim and intervening claims. Applicant has accordingly amended claim 10. Applicant has amended the base claims for claims 3 and 9 and submits that these claims should be allowed.

As explained during the interview, the electrical connection of this invention is remote made up in a subsea wellhead assembly, which could be thousands of feet below the sea level. As shown in Figure 1, the inner electrical contact member 31 moves outward to engage the outer electrical contact member 75. Prior art such as U.S. 5,558,532 (Hopper) operates in reverse, with the outer electrical contact member stroking inward to engage the inner contact member.

In applicant's invention, an active inner electrical contact member 31 is mounted to a tubing hanger body 11 that secures to a string of conduit (not shown). Tubing hanger 11 lands on a shoulder (not shown) in outer wellhead member 13. After tubing hanger body 11 has landed, running tool 15 strokes cam sleeve 17 downward to push a lock ring 23 outward into engagement with a profile 27 formed in the bore of outer wellhead housing 13. Simultaneously

with the downward movement of cam sleeve 17, the actuator moves inner connector 31 outward into engagement with outer connector member 75. As shown in Figure 2, in the preferred embodiment, the actuator includes an axially extending rod 35 having a cam block 37 at its lower end that engages a cam member 39 (Figure 2) at the outer end of electrical contact member 43.

Wilkins, cited by the Examiner in the office action of April 27, 2005, discloses a hydraulic coupling that remotely makes up between a tubing hanger assembly (Figure 13) and an outer tubing spool 550. The sequence of operation is best illustrated in Figures 15-18. Because a number of components aren't numbered in these figures, applicant is enclosing hand marked copies to indicate certain components. The tubing hanger body is shown connected to a string of tubing. A carrier body (numeral 50 in Figure 1) is rigidly secured to the lower end of the tubing hanger body apparently by the fasteners, which are not shown. Carrier ring 30 is axially movable relative to the carrier body. Inner hydraulic coupling 20 is radially movable in carrier ring 30 from the inner position in Figure 15 to the outer position in Figure 18.

In Figure 15, the tubing hanger body is being lowered into the outer wellhead member and is still spaced above the load shoulder in the bore of the outer wellhead member. Also, carrier ring 30 is spaced above a tag shoulder in the bore of the outer wellhead member, which has a smaller width and is below the load shoulder.. As shown in Figure 16, carrier ring 30 lands on the tag shoulder before the tubing hanger lands on the load shoulder. Carrier ring 30 is now in alignment with the outer electrical member and is prevented from further downward movement. Figure 17 shows that the tubing hanger continues to move downward, causing cam member 360 to push inner hydraulic coupling 20 laterally outward. In Figure 18, the tubing hanger has now landed on the load shoulder and inner hydraulic 20 is fully engaged with the the

outer hydraulic coupling. Although not explained, after the step in Figure 18, a lock ring that is not shown would be actuated by a running tool lock the tubing hanger to the wellhead member.

The important difference between Wilkins and the claimed invention of this application is that Wilkins makes up the hydraulic coupling in response to downward movement of the tubing hanger body before it has landed. In applicant's invention, the tubing hanger lands first, then the inner contact member is moved outward. Applicant's apparatus does need to have a tag shoulder, a carrier body, or a carrier ring.

Claim 1 as amended requires an actuator carried by the tubing hanger assembly in cooperative engagement with the inner electrical member for moving the inner electrical member to the extended position after the tubing hanger body and the inner electrical member have landed in the bore. Claim 1 also requires the inner electrical member to be mounted to the tubing hanger body for axial movement therewith. These requirements distinguish over Wilkins because in Wilkins, the inner hydraulic coupling is axially movable relative to the tubing hanger body. In Wilkins, the actuator moves the inner coupling member to the extended position while the tubing hanger body is landing, not after.

Claim 2 depends from claim 1 and further specifies that the actuator moves the inner electrical member to the extended position in response to the running tool moving the lock member to the set position. In Wilkins, the running tool would move the lock member to the set position after the tubing hanger has landed, which is after the inner hydraulic coupling has engaged the outer hydraulic coupling.

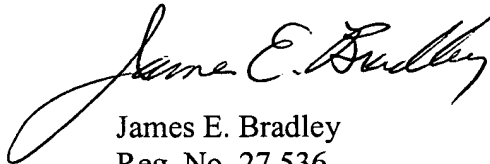
Claim 8 requires lowering the inner wellhead member, which is called "tubing hanger" in claim 1, the string of conduit, and the inner electrical member into the outer wellhead member

and landing the inner wellhead member in the outer wellhead member. Claim 8 also requires extending the inner electrical member outward into in electrical engagement with the outer electrical member after ceasing downward movement of the inner wellhead member, the string of conduit and the inner electrical member. Wilkins discloses the reverse. Claim 9 depends from claim 8 and requires that the step of extending the inner electrical member occur in response to setting a locking member.

Huntsinger, Buresi and Cameron were cited only for combination with Wilkins. Huntsinger was cited for the proposition that the hydraulic connections of Wilkins could be changed to electrical connections. Buresi and Cameron were cited to show axially moving cams that push elements inwardly. Applicant does not believe it necessary to discuss these references.

It is respectfully submitted that the claims are now in condition for allowance and favorable action is respectfully requested.

Respectfully submitted,



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FIG. 16

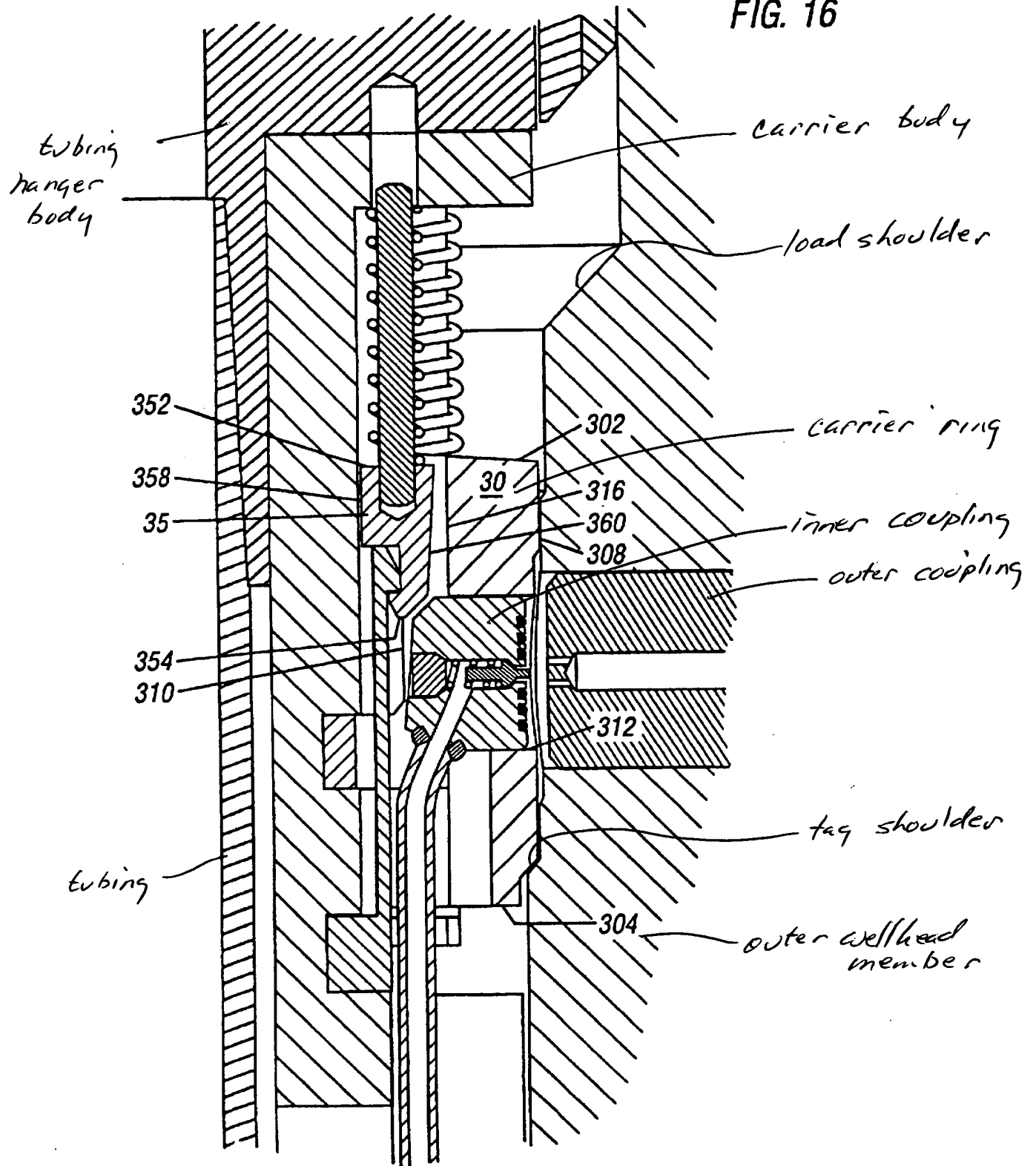


FIG. 17

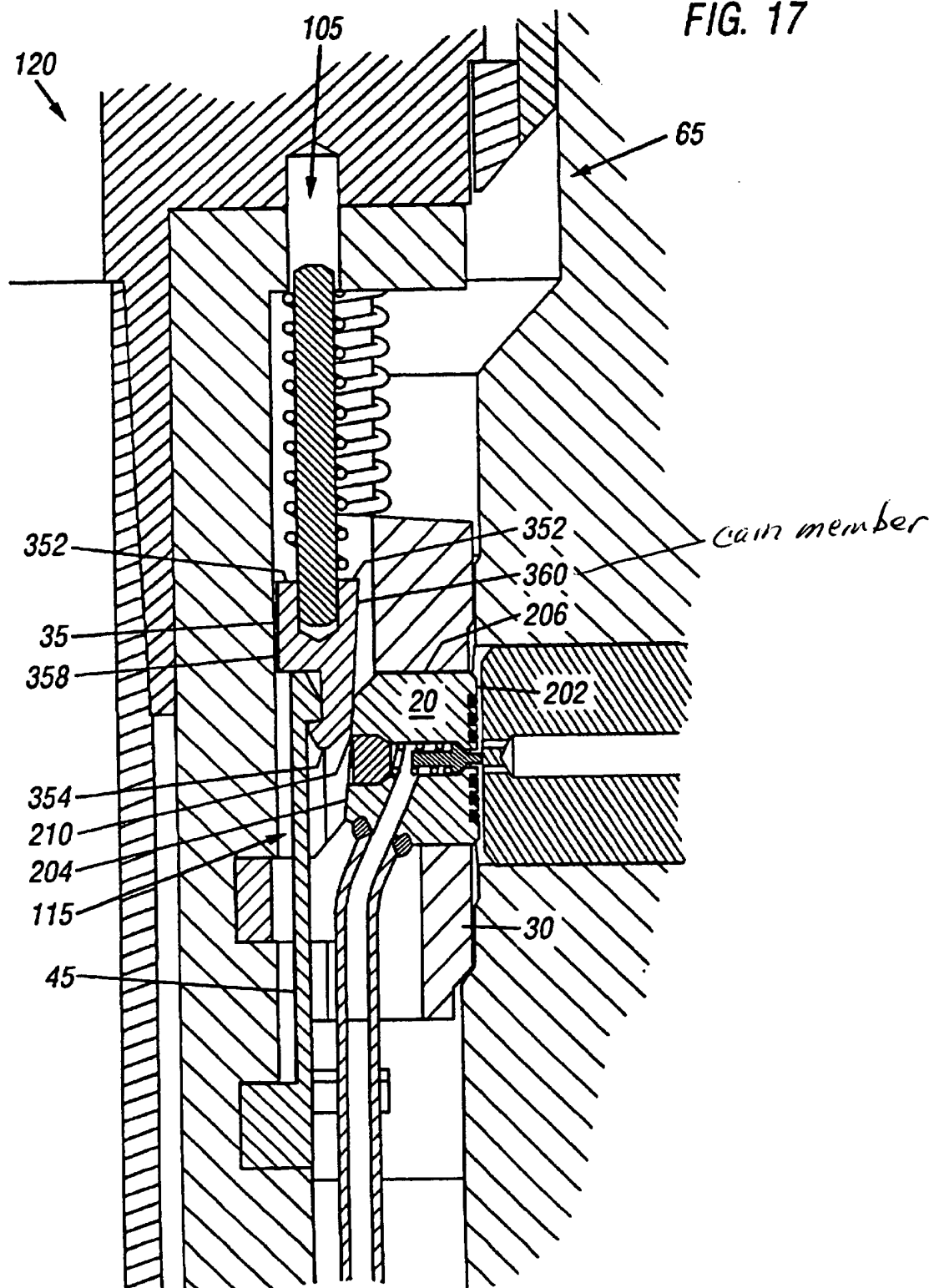


FIG. 18

